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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,007	JEONG ET AL.	
	Examiner	Art Unit	
	SUNG AHN	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 September 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *22-51* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *22-51* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in reply to the Applicant's amendments filed on 21 September 2011.

2. Claims 22, 24, 25, 33, 34, 35, 37, and 48 have been amended.

3. Claims 1-21 have been canceled.

4. Claims 22-51 are currently pending and have been examined.

Response to Arguments

5. Claims 22, 24, 25, 34, and 35 have been amended to overcome the claim objection. The objections to claims 22, 24, 25, 34, and 35 are hereby withdrawn.

6. Applicant's arguments with respect to claims 22-51 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 22, 33, 37, and 48 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claims 22, 33, 37, and 48 recite the limitation "wherein each of a digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, and a digital cable broadcasting system are configured to be the first transmitting means" but fail to particularly point out and distinctly claim the subject matter as which specific digital broadcasting system is implemented as digital broadcasting system. The Applicant's specification disclose the implementation of specific digital broadcasting system (Fig. 2A (240) – singular broadcasting system) of other diverse digital broadcasting systems (plural) including digital audio broadcasting system, digital television broadcasting system, digital satellite broadcasting system, and the digital cable broadcasting system (paragraph [0013, 0034]). For purpose of examination, the digital broadcasting system is directed to one of various broadcasting systems including digital audio broadcasting system, digital television broadcasting system, digital satellite broadcasting system, and the digital cable broadcasting system as disclose in Fig. 1 and paragraph [0013, 0034] of Applicant's specification.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 22, 23, 26-30, 37, 38, 41-45, 48, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. PGPub. No. 20020080887 to Jeong et al. in further view of WIPO Pub. No. WO 02/058388 to Ahn et al. and U.S. PGPub. No. 20020087973 to Hamilton et al.

As to **Claims 22 and 37**, Jeong disclose a digital multimedia broadcasting (DMB) system and method, comprising:

an audio/video encoding means for encoding inputted audio/video signals (Fig. 1 (11-14));

a multiplexing means for multiplexing each of the media stream (Fig. 1 (15), Fig. 6, paragraph [0051], where the encoded audio and data is multiplexed to MPEG-2 transport stream to be transmitted through modulation part);

an error correction encoding means for performing additional error correction encoding onto a media stream outputted from the multiplexing means (Fig. 1 (30), paragraph [0053, 0056], where the Reed-Solomon (RS) encoder for error correction);

an interleaving means for removing temporal correlation between adjacent byte units within a media stream outputted from the error correction encoding means(Fig. 1 (40), Fig. 7, paragraph [0053, 0061], where the outer interleaver performing byte-wise interleaving);

and a first transmitting means for transmitting a DMB media stream outputted from the interleaving means (Fig. 1 (120, 130, 140), paragraph [0051], where the MPEG-2 transport stream is modulated and transmitted),

wherein a digital audio broadcasting system is configured to be the first transmitting means (Fig. 1, paragraph [0016, 0019], where the present invention is directed to the digital audio broadcasting system).

Jeong disclose the transmission of encoded audio and data in MPEG-2 transport stream with added error correcting coding and interleaving (Fig. 1, paragraph [0051, 0053, 0061]) but does not explicitly disclose of the digital media broadcasting of synchronized video and the interactive service objectifying data through system encoding means.

Meanwhile Ahn disclose the transmission of MPEG-4 synchronized with MPEG-2 data by synchronizing (packetizing) the audio and video data along with object information such as object descriptor (OD) and binary format for scene (BIFS) through sync layer (SL) packetizer (Fig. 1 (131)) (Fig. 1, Page 1 line 25—Page 2 line 14, Page 7 line 31 – Page 8 line 3). Also the communication of interactive audio-visual scenes (data object for interactive service) is one of standard service supported along with video/audio for MPEG-4 format as described in ISO/IEC 14496-1 International Standard (Fig. 1, Section 0.6.2 on pages 10-11) and IEEE Journal "Virtual Shop and Virtual Meeting Point - Two Prototype Application of Interactive Services Using the New Multimedia Coding Standard MPEG-4" (abstract) presented here as evidential reference.

Therefore, one of ordinary skilled in the art would have found obvious from the combined teachings of Jeong and Ahn as a whole to produce the invention as claimed on expectation providing both MPEG-2 and MPEG-4 data for

broadcasting and communication seamlessly by synchronizing newly proposed MPEG-4 format to existing MPEG-2 communication scheme (Ahn – Page 1 lines 13-23).

Jeong in view of Ahn disclose the transmission of encoded audio and data in MPEG-2 transport stream in audio broadcasting system (Jeong - Fig. 1, paragraph [0016, 0019]) but does not explicitly disclose the broadcasting of the digital television (TV), digital satellite, and digital cable system.

Meanwhile it is well known in art of transmitting of signals over variety of systems including air, space, cable lines, optical lines, etc. and Hamilton disclose the well-known in art of digital television distributed over variety of systems including satellite, terrestrial, and cable (Fig. 1A and 1B, paragraph [0002]).

Therefore, one of ordinary skilled in the art would have found obvious from the combined teachings of Jeong, Ahn, and Hamilton as a whole to produce the invention as claimed on expectation of expand the transmission the digital data (audio, television, data, etc.) over various broadcasting systems.

As to **Claim 48**, Jeong disclose a digital multimedia broadcasting (DMB) method, comprising steps of:

receiving digital multimedia broadcasting media stream inputted into a first receiving device (Fig. 1, paragraph [0016, 0019, 0100], where the receiver of the digital audio broadcasting system include the corresponding deinterleaver and

RS decoder (paragraph [0100]) to match the transmitter side and it will implicitly requires same RF receiving means to receive the broadcasted audio signal for deinterleaving and decoding);

deinterleaving the received digital multimedia broadcasting media stream which is interleaved to remove temporal correlation in adjacent byte units (Fig. 1 (40), Fig. 7, paragraph [0053, 0061, 0100], where the receiver of the digital audio broadcasting system include the corresponding deinterleaver for deinterleaving the byte-wise interleaved data stream);

performing additional error correction decoding onto the deinterleaved digital multimedia broadcasting media stream which is generated from additional error correction encoding (Fig. 1 (30), paragraph [0053, 0056, 0100], where the receiver of the digital audio broadcasting system include the corresponding Reed-Solomon (RS) decoder for decoding encoded data stream by the Reed-Solomon (RS) encoder for error correction in transmitter side);

demultiplexing the additional error correction decoded digital multimedia broadcasting media stream which is multiplexed (Fig. 1 (15), paragraph [0051, 0100], where the receiver of the digital audio broadcasting system will implicitly requires the corresponding demultiplexing means for demultiplexing RS decoded data stream for audio and data decoding. Also the conventional demultiplexer (Fig. 1 (170)) after RS decoder (140) is shown in paragraph [0015] and Fig. 1 of U.S. PGPub. No. 20060150066 presented here as evidential reference);

decoding the demultiplexed digital multimedia broadcasting media stream to produce each of media stream and additional data (Fig. 1 (11, 12, 13, 14), paragraph [0051, 0100], where the receiver of the digital audio broadcasting system will implicitly requires the corresponding decoding means for decoding the data stream into appropriate audio and data signals. Also the conventional audio and video decoder after demultiplexer (Fig. 1 (170)) is disclosed in paragraph [0015] of U.S. PGPub. No. 20060150066 presented here as evidential reference);

wherein the first receiving device is a digital audio broadcasting system, (Fig. 1, paragraph [0016, 0019], where the present invention is directed to the digital audio broadcasting system).

Jeong disclose the receiving of encoded audio (media stream) and data in MPEG-2 transport stream with added error correcting coding and interleaving for corresponding deinterleaving and RS decoding (Fig. 1, paragraph [0051, 0053, 0061, 0100]) but does not explicitly disclose of generating the interactive service objectifying data through system decoding means.

Meanwhile Ahn disclose the transmission of MPEG-4 synchronized with MPEG-2 data by synchronizing (packetizing) the audio and video data along with object information such as object descriptor (OD) and binary format for scene (BIFS) through sync layer (SL) packetizer (Fig. 1 (131)) (Fig. 1, Page 1 line 25—Page 2 line 14, Page 7 line 31 – Page 8 line 3). Also the communication of interactive audio-visual scenes (data object for interactive service) is one of

standard service supported along with video/audio for MPEG-4 format as described in ISO/IEC 14496-1 International Standard (Fig. 1, Section 0.6.2 on pages 10-11) and IEEE Journal "Virtual Shop and Virtual Meeting Point - Two Prototype Application of Interactive Services Using the New Multimedia Coding Standard MPEG-4" (abstract) presented here as evidential reference. Further, the receiver side implicitly extracts the interactive service objectifying data through the extracting/decoding means corresponding to the synchronizing through packetizing of MPEG-4 with MPEG-2 data in transmitter of the digital broadcasting system (Page 1 line 26 – Page 2 line 14, Page 14 lines 22-29).

Therefore, one of ordinary skilled in the art would have found obvious from the combined teachings of Jeong and Ahn as a whole to produce the invention as claimed on expectation providing both MPEG-2 and MPEG-4 data for broadcasting and communication seamlessly by synchronizing newly proposed MPEG-4 format to existing MPEG-2 communication scheme (Ahn – Page 1 lines 13-23).

Jeong in view of Ahn disclose the transmission of encoded audio and data in MPEG-2 transport stream in audio broadcasting system (Jeong - Fig. 1, paragraph [0016, 0019]) but does not explicitly disclose the broadcasting of the digital television (TV), digital satellite, and digital cable system.

Meanwhile it is well known in art of transmitting of signals over variety of systems including air, space, cable lines, optical lines, etc. and Hamilton disclose the well-known in art of digital television distributed over variety of

systems including satellite, terrestrial, and cable (Fig. 1A and 1B, paragraph [0002]).

Therefore, one of ordinary skilled in the art would have found obvious from the combined teachings of Jeong, Ahn, and Hamilton as a whole to produce the invention as claimed on expectation of expand the transmission the digital data (audio, television, data, etc.) over various broadcasting systems.

As to **Claims 23 and 38**, Jeong in view of Ahn further disclose the digital multimedia broadcasting (DMB) system wherein the audio/video signal is encoded and transmitted in predetermined format (MPEG-2, MPEG-4, etc) but does not explicitly disclose converting audio/video signal to predetermined format by preprocessing before encoding. Meanwhile it is well known in art that raw video/audio source (analog) is converted to frame of data of certain format (digital) before encoded through use of digital camcorders, digital cameras, etc. The generation of video frame from standard source before encoding is shown in Fig. 1 and Col. 1 lines 28-37 of U.S. Pat. No. 6570926 presented here as evidential reference.

As to **Claims 26 and 41**, Ahn further disclose the digital multimedia broadcasting (DMB) system wherein the synchronizing means include:

an Object Descriptor (OD)/Binary Format for Scene (BIFS) generating means for generating OD/BIFS for interactive service (Fig. 1 (121), Page 7 line

31 – Page 8 line 3, where the object separator extract the object descriptor (OD) and binary format for scene (BIFS) and send to sync layer packetizer along with audio and video for generating synchronized packet stream);

an Initial Object Descriptor (IOD) generating means for generating an IOD (Fig. 1 (121), Page 7 line 31 – Page 8 line 3, where the object separator extract the initial object descriptor (IOD) to be used in PSI);

a sync layer packetizing means for synchronizing media streams outputted from the encoding means and the OD/BIFS generating means (Fig. 1 (131), Page 7 line 31 – Page 8 line 3, where the sync layer packetizer packetizes the audio and video along with OD an d BIFS for generating synchronized packet stream);

The suggestion/motivation is the same as that used in the rejection for claims 22 and 37.

As to **Claims 27 and 42**, Ahn further disclose the digital multimedia broadcasting (DMB) system wherein the multiplexing means includes:

a PES packetizing means for generating a Program Elementary Stream (PES) based on a packet outputted from the sync layer packetizing means (Fig. 1 (136));

a section packetizing means for generating section based on data which is outputted from the IOD generating manes and a packet which is generated in the sync layer packetizing means based on a OD/BIF stream, wherein the OD/BIFS

stream is outputted from the OD/BIFS generating means (Fig. 1 (134, 135), Page 7 line 31 – Page 8 line 3, where the PSI generator generating PSI using IOD from object separator);

a transport stream (TS) packetizing means for packetizing data outputted from the PES packetizing means, the section packetizing means and the PSI generating means into transport stream (Fig. 1 (137))

The suggestion/motivation is the same as that used in the rejection for claims 22 and 37.

As to **Claims 28 and 43**, Ahn further disclose the digital multimedia broadcasting (DMB) system wherein the section packetizing means includes:

a 14496 section packetizing means for generating 14496 section based on the packet which is generated in the sync layer packetizing means based on the OD/BIFFS streams (Fig. 1 (135));

a Program Service Information (PSI) generating means for generating PSI based on the data outputted from the IOD generating means (Fig. 1 (134), Page 7 line 31 – Page 8 line 3, where the PSI generator generating PSI using IOD from object separator);

The suggestion/motivation is the same as that used in the rejection for claims 22 and 37.

As to **Claims 29, 44, and 51**, Jeong further disclose the digital multimedia broadcasting (DMB) system wherein the error correction encoding means is a RS encoder/decoder (Fig. 1 (30), Fig. 6, paragraph [0056, 0100], where the shortened RS code (204, 188, t=8) is used for correcting errors to enhanced the bit error rate (inherent function of RS encoder/decoder)).

As to **Claims 30 and 45**, Jeong further disclose the digital multimedia broadcasting (DMB) system wherein the interleaving means is formed of 12 branches, and each branch, where is formed of memories based on a 17-byte x N unit (N=0,1,2, ..., 11), has input and output switches synchronized with each other, and a synchronizing word for synchronization is transmitted always through a '0' branch and the synchronization of a deinterleaver is obtained by allocating the first recognized synchronization word to the '0' branch (Fig. 7, paragraph [0061], where the interleaver composed of 12 branches with 17-byte x N shift registers (memory) and sync byte always be routed through branch '0').

12. Claims 33 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. PGPub. No. 20020080887 to Jeong et al. in further view of WIPO Pub. No. WO 02/058388 to Ahn et al., U.S. PGPub. No. 20020087973 to Hamilton et al., and U.S. PGPub. No. 200200856645 to Hadad et al.

As to **Claim 33**, Jeong disclose a digital multimedia broadcasting (DMB) system, comprising:

a first receiving means for receiving digital multimedia broadcasting media stream (Fig. 1, paragraph [0016, 0019, 0100], where the receiver of the digital audio broadcasting system include the corresponding deinterleaver and RS decoder (paragraph [0100]) to match the transmitter side and it will implicitly requires same RF receiving means to receive the broadcasted audio signal for deinterleaving and decoding);

a deinterleaving means for deinterleaving the received digital multimedia broadcasting media stream which is interleaved to remove temporal correlation in adjacent byte units (Fig. 1 (40), Fig. 7, paragraph [0053, 0061, 0100], where the receiver of the digital audio broadcasting system include the corresponding deinterleaver for deinterleaving the byte-wise interleaved data stream);

an error correction decoding means for performing additional error correction decoding onto deinterleaved digital multimedia broadcasting media stream which is generated from additional error correction encoding (Fig. 1 (30), paragraph [0053, 0056, 0100], where the receiver of the digital audio broadcasting system include the corresponding Reed-Solomon (RS) decoder for decoding encoded data stream by the Reed-Solomon (RS) encoder for error correction in transmitter side);

a demultiplexing means for demultiplexing the additional error correction decoded digital multimedia broadcasting media stream which is multiplexed (Fig. 1 (15), paragraph [0051, 0100], where the receiver of the digital audio broadcasting system will implicitly requires the corresponding demultiplexing

means for demultiplexing RS decoded data stream for audio and data decoding. Also the conventional demultiplexer (Fig. 1 (170)) after RS decoder (140) is shown in paragraph [0015] and Fig. 1 of U.S. PGPub. No. 20060150066 presented here as evidential reference);

a audio/video decoding means for decoding the media stream into audio/video signals (Fig. 1 (11, 12, 13, 14), paragraph [0051, 0100], where the receiver of the digital audio broadcasting system will implicitly requires the corresponding decoding means for decoding the data stream into appropriate audio and data signals. Also the conventional audio and video decoder after demultiplexer (Fig. 1 (170)) is disclosed in paragraph [0015] of U.S. PGPub. No. 20060150066 presented here as evidential reference);

wherein a digital audio broadcasting system is configured to be the first receiving means (Fig. 1, paragraph [0016, 0019], where the present invention is directed to the digital audio broadcasting system).

Jeong disclose the receiving of encoded audio (media stream) and data in MPEG-2 transport stream with added error correcting coding and interleaving for corresponding deinterleaving and RS decoding (Fig. 1, paragraph [0051, 0053, 0061, 0100]) but does not explicitly disclose of generating the interactive service objectifying data through system decoding means.

Meanwhile Ahn disclose the transmission of MPEG-4 synchronized with MPEG-2 data by synchronizing (packetizing) the audio and video data along with object information such as object descriptor (OD) and binary format for scene

(BIFS) through sync layer (SL) packetizer (Fig. 1 (131)) (Fig. 1, Page 1 line 25—Page 2 line 14, Page 7 line 31 – Page 8 line 3). Also the communication of interactive audio-visual scenes (data object for interactive service) is one of standard service supported along with video/audio for MPEG-4 format as described in ISO/IEC 14496-1 International Standard (Fig. 1, Section 0.6.2 on pages 10-11) and IEEE Journal "Virtual Shop and Virtual Meeting Point - Two Prototype Application of Interactive Services Using the New Multimedia Coding Standard MPEG-4" (abstract) presented here as evidential reference. Further, the receiver side implicitly extracts the interactive service objectifying data through the extracting/decoding means corresponding to the synchronizing through packetizing of MPEG-4 with MPEG-2 data in transmitter of the digital broadcasting system (Page 1 line 26 – Page 2 line 14, Page 14 lines 22-29).

Therefore, one of ordinary skilled in the art would have found obvious from the combined teachings of Jeong and Ahn as a whole to produce the invention as claimed on expectation providing both MPEG-2 and MPEG-4 data for broadcasting and communication seamlessly by synchronizing newly proposed MPEG-4 format to existing MPEG-2 communication scheme (Ahn – Page 1 lines 13-23).

Jeong in view of Ahn disclose the transmission and reception of encoded audio and data in MPEG-2 transport stream in audio broadcasting system (Jeong - Fig. 1, paragraph [0016, 0019, 0100]) but does not explicitly disclose the

broadcasting of the digital television (TV), digital satellite, and digital cable system.

Meanwhile it is well known in art of transmitting and reception of signals over variety of systems including air, space, cable lines, optical lines, etc. and Hamilton disclose the well-known in art of digital television distributed over variety of systems including satellite, terrestrial, and cable (Fig. 1A and 1B, paragraph [0002]).

Therefore, one of ordinary skilled in the art would have found obvious from the combined teachings of Jeong, Ahn, and Hamilton as a whole to produce the invention as claimed on expectation of expand the transmission the digital data (audio, television, data, etc.) over various broadcasting systems.

Jeong in view of Ahn and Hamilton disclose the receiving of encoded audio (media stream) and data in MPEG-2 transport stream with added error correcting coding and interleaving for corresponding deinterleaving and (Reed Solomon) RS decoding (Fig. 1, paragraph [0051, 0053, 0061, 0100]) but does not explicitly disclose of receiving broadcasting media stream having a bit rate (BER) of less than $1x10^{8}$.

Meanwhile the bit error rate (BER) of the received signal depends on the channel environment where no interference or noise will cause low bit error rate while higher interference or noise will cause high bit error rate of the signal. Further, Hadad disclose the improved Reed Solomon stage and 12 kbit deep interleaver to reduce the bit error rate (BER) to $1x10^{11}$ (paragraph [0003]).

Therefore, one of ordinary skilled in the art would have found obvious from the combined teachings of Jeong, Ahn, Hamilton, and Hadad as a whole to produce the invention as claimed on expectation improving bit error rate in the receiver of digital broadcasting system.

As to **Claim 36**, Jeong further disclose the digital multimedia broadcasting (DMB) system wherein the error correction encoding means is a RS encoder/decoder (Fig. 1 (30), Fig. 6, paragraph [0056, 0100], where the shortened RS code (204, 188, t=8) is used for correcting errors to enhanced the bit error rate (inherent function of RS encoder/decoder)).

13. Claims 24, 25, 39, 40, 49, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. PGPub. No. 20020080887 to Jeong et al., WIPO Pub. No. WO 02/058388 to Ahn et al., and U.S. PGPub. No. 20020087973 to Hamilton et al. in further view of White Paper "AVC + AAC The Next Generation of Compression" by Harmonic.

As to **Claims 24, 25, 39, 40, 49, and 50**, Jeong in further view of Ahn and Hamilton disclose the digital multimedia broadcasting (DMB) system with MPEG-4 audio/video data (Ahn – Page 1 lines 26-33) and MPEG-2 audio coding/encoding and decoding (codec) using Advanced Audio Coding (AAC) but does not explicitly disclose of the using other coding/encoding and decoding (codec) format of "MPEG-4 Part 2" or "MPEG4-Part 10 Advanced Video Coding

(AVC)" as video encoder and "Advanced Audio Coding (AAC)", "AAC+", or "Bit Sliced Arithmetic" Coding (BSAC)" as audio encoder.

Meanwhile it is well known in art that MPEG-4 supports additional coding/encoding and decoding (codec) format to take full advantage of new standard. Also Harmonic white paper disclose the new standard codec format of MPEG-4 Part 10 or MPEG-4 Advanced Video Coding along with high efficiency Advanced Audio Coding (AAC) proposed by ITU and ISO to achieve 40-50% gain over MPEG-2 system (Page 2 - 2nd paragraph, Page 3 – 5th and 6th paragraph).

Therefore, one of ordinary skilled in the art would have found obvious from the combined teachings of Jeong, Ahn, Hamilton, and Harmonic white paper as a whole to produce the invention as claimed with on expectation of improving digital broadcasting system using improved compression of audio/video signal (more data in transmitted signal) using newly proposed standard of coding/encoding and decoding (codec) format of "MPEG-4 Part 10 Advanced Video Coding" along with high efficiency Advanced Audio Coding (AAC).

14. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. PGPub. No. 20020080887 to Jeong et al., WIPO Pub. No. WO 02/058388 to Ahn et al., U.S. PGPub. No. 20020087973 to Hamilton et al., and U.S. PGPub. No. 200200856645 to Hadad et al. in further view of White Paper "AVC + AAC The Next Generation of Compression" by Harmonic.

As to **Claims 34 and 35**, Jeong in further view of Ahn, Hamilton, and Hadad disclose the digital multimedia broadcasting (DMB) system with MPEG-4 audio/video data (Ahn – Page 1 lines 26-33) and MPEG-2 audio coding/encoding and decoding (codec) using Advanced Audio Coding (AAC) but does not explicitly disclose of the using other coding/encoding and decoding (codec) format of "MPEG-4 Part 2" or "MPEG4-Part 10 Advanced Video Coding (AVC)" as video encoder and "Advanced Audio Coding (AAC)", "AAC+", or "Bit Sliced Arithmetic" Coding (BSAC)" as audio encoder.

Meanwhile it is well known in art that MPEG-4 supports additional coding/encoding and decoding (codec) format to take full advantage of new standard. Also Harmonic white paper disclose the new standard codec format of MPEG-4 Part 10 or MPEG-4 Advanced Video Coding along with high efficiency Advanced Audio Coding (AAC) proposed by ITU and ISO to achieve 40-50% gain over MPEG-2 system (Page 2 - 2nd paragraph, Page 3 – 5th and 6th paragraph).

Therefore, one of ordinary skilled in the art would have found obvious from the combined teachings of Jeong, Ahn, Hamilton, Hadad, and Harmonic white paper as a whole to produce the invention as claimed with on expectation of improving digital broadcasting system using improved compression of audio/video signal (more data in transmitted signal) using newly proposed standard of coding/encoding and decoding (codec) format of "MPEG-4 Part 10

Advanced Video Coding" along with high efficiency Advanced Audio Coding (AAC).

15. Claim 31 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. PGPub. No. 20020080887 to Jeong et al., WIPO Pub. No. WO 02/058388 to Ahn et al., and U.S. PGPub. No. 20020087973 to Hamilton et al. in further view of European Telecommunication Standard Institution Draft for Digital Audio Broadcasting (DAB) Ensemble Transport Interface to ETSI.

As to **Claims 31 and 46**, Jeong in further view of Ahn and Hamilton disclose the digital audio broadcasting (DAB) system for providing services through the interleaved digital multimedia broadcasting media stream (Jeong – Fig. 1, paragraph [0003, 0015]) but does not explicitly disclose the an Ensemble Transport Interface (ETI) converting means for converting the digital multimedia broadcasting media stream into an ETI frame and delivering the ETI frame to the first transmitting means.

Meanwhile ETSI disclose the proposed the Ensemble Transport Interface (ETI) for Digital Audio Broadcasting system to be transmitted over the transport network using ETI frame format (Page 8 - Introduction, Page 55 - Fig. 12, Page 11 - Scope).

Therefore, one of ordinarily skilled in the art would have found obvious from the combined teachings of Jeong, Ahn, Hamilton, and ETSI as a whole to produce the invention as claimed with on expectation expanding the number of

different physical media including the transport network for the broadcasting of digital multimedia stream (ETSI – Page 11 (Scope)).

16. Claim 32 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. PGPub. No. 20020080887 to Jeong et al., WIPO Pub. No. WO 02/058388 to Ahn et al., and U.S. PGPub. No. 20020087973 to Hamilton et al. in further view of U.S. Pat. No. 7492786 to Ferris.

As to **Claims 32 and 47**, Jeong in further view of Ahn and Hamilton disclose the digital multimedia broadcasting (DMB) system transmitting the interleaved digital multimedia broadcasting media stream (Jeong – Fig. 1 (120, 130, 140), paragraph [0051]) (Ahn – abstract) but does not explicitly disclose the an Internet Protocol (IP) datagram converting means for converting the digital multimedia broadcasting media stream into an IP datagram and delivering the IP datagram to the first transmitting means.

Meanwhile Ferris disclose the encoding the digital streaming media and sending to the central multiplexer using IP based protocol to reduce the cost over sending the digital streaming data using service transport interface (STI) (abstract, Col. 2 line 67 – Col. 3 line 23).

Therefore, one of ordinarily skilled in the art would have found obvious from the combined teachings of Jeong, Ahn, Hamilton, and Ferris as a whole to produce the invention as claimed with on expectation of reducing the cost of transmitting the digital multimedia stream using IP based protocol.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUNG AHN whose telephone number is (571)270-3706. The examiner can normally be reached on Monday-Friday, 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571)272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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